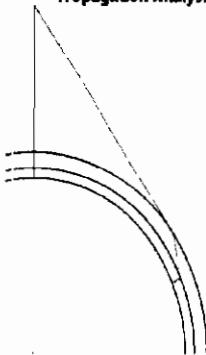


Givens & Bell

Advanced Radio
Propagation Analysis



FILED/ACCEPTED

JUL 20 2009

Federal Communications Commission
Office of the Secretary

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of) MM Docket No. 99-325
) Digital Audio Broadcasting Systems
) And Their Impact On the Terrestrial Radio
) Broadcast Service

July 20, 2009

To: Ms. Marlene Dortch, Secretary
Office of the Secretary,
Federal Communications Commission

Certification of accuracy of electronic file copy of accompanying
MOTION TO ACCEPT THE FILING AS TIMELY FILED.

Dear Madam Secretary:

I hereby certify that the accompanying CD contains the original files in Word and Excel, used to print the paper copy currently being hand delivered along with this certification. These are being submitted only for the purpose of providing the best possible copy of the attached for recording and distribution, and is not a separate filing. The Excel file will be of greater use to the Commission's engineers and analysts in the original Excel form.

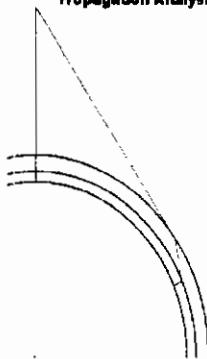
Certified this 20th day of July, 2009,

Sid Shumate, President
Givens and Bell, Inc.

No. of Copies rec'd 044
List ABCDE

(JW/TC & BG)

Advanced Radio
Propagation Analysis



FILED/ACCEPTED

JUL 20 2009

Federal Communications Commission
Office of the Secretary

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
) MM Docket No. 99-325
) Digital Audio Broadcasting Systems
) And Their Impact On the Terrestrial Radio
) Broadcast Service

July 20, 2009

To: Ms. Marlene Dortch, Secretary
Office of the Secretary,
Federal Communications Commission

Hereby submitted: a MOTION TO ACCEPT THE FILING AS TIMELY FILED.

In Re: Reply to Comment in response to DA-1127

Dear Madam Secretary:

The following REPLY TO COMMENT, now in paper form, was attempted to be submitted in electronic form several times, using the FCC web interface at: http://fjallfoss.fcc.gov/prod/ecfs/upload_v2.cgi, between 11:30 p.m. and the midnight deadline for this submission, on Friday, June 19.

The website stalled on the first submission of the second part of three, the Excel file containing the 320 pages of data regarding predicted IBOC radio reception at 1, 4, 6 and 10 percent insertion, for 32 stations in Washington, DC, and did not start to respond again until Monday morning, July 20, 2009. I contacted your office via phone at (202) 418-0300, and was informed by the clerk answering the phone that no part of the submission was received, and that it could only now be accepted entirely "on paper".

I hereby therefore submit this "Motion to Accept the Filing as Timely Filed", along with
1 printed original and 4 copies of the original Reply to Comment, hand delivered.

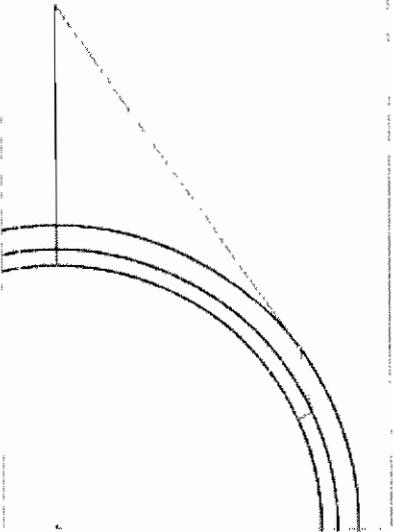
Sincerely yours,

A handwritten signature in black ink, appearing to read "Sid Shumate".

Sid Shumate, President
Givens and Bell, Inc.
1897 Ridge Rd.
Haymarket, VA 20169
(703) 753 8951
tsunami@tidalwave.net

Givens & Bell

Advanced Radio
Propagation Analysis



**FM COMPREHENSIVE MARKET RECEPTION
REPORT
for the
WASHINGTON D.C. METRO MARKET #9**

**CUSTOMIZED TO INCLUDE
1%, 2.5%, 4% and 10% IBOC POWER LEVELS**

**Submitted as a Reply to Comment before the Federal
Communications Commission
In re: MM Docket 99-325,
DA 09-1127,
Further Request for Comment on Four Issues**

SUBMITTED BY:
Sid Shumate
Givens & Bell, Inc.
1897 Ridge Rd
Haymarket, VA

July 17, 2009

July 17, 2009

Sent to:

Marlene H. Dortch, Secretary
Federal Communications Commission
Washington, DC.

(MM Docket 99-325
DA 09-1127

Reply to Comment
In Re: MM Docket No. 99-325
DA 09-1127 Further Request for Comment

To: The Secretary, Commissioners and Staff:

Previously we submitted a set of preliminary results to the Federal Communications Commission in re: the Further Request for Comment, MM Docket No. 99-325, as an informal Comment, in response to the four issues for which comment was sought.

We now reply to the Comments of (1) IBIQUITY, and (2) Charles River Broadcasting.

IBIQUITY:

With respect to the IBIQUITY request for an immediate increase of 6 dB in IBOC insertion power we submit an expanded replacement set of results. This expands the computations to predict additional data as to the effect of interim power increases of 2.5% (4dB) and 4% (6dB). The report now also includes full numerical results for all 32 stations in the Washington, DC Market #9 Study, in worksheet form (attached in both .xls and .pdf form).

The 4% (6 dB) computations are in reply to the request of IBIQUITY for an increase of 6 dB. We have voluntarily included the 2.5% (4 dB) increase computations because our own analysis, as presented before the NAB Broadcast Engineering Conference in 2006, and updated in the attached White Paper in 2009, shows that even the best FM analog receivers by independent test, the car radios, on the average start to suffer interference to the desired station's FM analog reception from self-interference of the desired station's own IBOC sidebands, when the insertion level reaches 4dB (2.5%).

Of the 1171 current FM full power authorizations within 300 km of the District of Columbia reference community co-ordinates for which individual Longley-Rice-Shumate analyses were performed for this study, 297 are authorized for IBOC transmission, or roughly one-quarter of the total. Of the thirty-two Washington, D.C. Market #9 commercial and non-commercial in-market stations analyzed, eighteen are transmitting IBOC. This report is based on an analysis of various before, current, and future scenarios, and provides predicted reception data using the most advanced radio signal reception analysis methodology implementation ever achieved at this level of computational detail, a Comprehensive FM Market Analysis.

Givens & Bell, Inc. has been pursuing, for more than a decade, a different, deterministic approach to measuring wireless broadcast reception, using modern computers to better answer questions previously addressed by crude approximations. This work is among the first released results of this long awaited new approach, and is being submitted to the Commission in order to provide a second source, utilizing a far more sophisticated and detailed prediction of coverage that that possible using either the NTIA's outdated Longley-Rice ITM software core, or TIREM. These expanded, interim results include consideration of four different IBOC insertion levels, to provide raw, scientifically predicted coverage data to consider in addressing all four issues, and the resulting comments sought and received. These interim results should be used to replace the preliminary results I submitted on July 7, as computation errors have been found and corrected in the interim. The rushed results in the previous submission should be disregarded and replaced with these newly computed results.

The full, final report, originally and still scheduled to be a demonstrator model for a product to be represented by BIA Advisory Services' Dataworld division, to be made available at this fall's NAB Radio Show, will be complete in approximately the same time frame as the NPR report. A full tutorial on the new Longley-Rice-Shumate methodology utilized, and its use in this report, as well as copies of the full report, will be presented at the IEEE Broadcast Technology Society (BTS) 59th Annual Broadcast Symposium in Alexandria, VA, on October 14, 2009.

The software is designed to analyze and compare up to two IBOC power insertion levels at a time; therefore, the detailed reports for 32 stations, and the Summary, take up four tabs on the attached worksheet, with one pair of tabs containing results for 1% and 10% IBOC insertion levels, and one pair for 2.5% and 4% IBOC insertion levels. The worksheet tabs are designed to be ready to print with a print setup for Landscape, 80% normal size. There are no formulas embedded in the unlocked .xls version, only data.

In analyzing the results, we note for your consideration that the total reception of the station consists of the Prime reception area combined with the Acceptable reception area. The areas and demographics determined for the Prime and Acceptable (or Digital Edge) areas do not overlap, and represent the actual potential for reception by the station.

For FM analog reception, the Prime reception area is defined, in lay terms, as where the stereo light is on and stable, and the received audio is noise free. The acceptable range for analog FM reception is from the bottom edge of the Prime reception area down to the tune-out point (as defined by Ibisquity's tests), the point where the noise in the audio causes the average listener to "try another station".

For IBOC reception, the Prime area is defined as meeting or exceeding FCC (90,90) reliability requirements for Hybrid reception, or FCC (97,90) for Multicast Reception. The Digital Edge coverage is defined as being between the Prime area and the "Digital Cliff".

Our methodology determines and takes away the area lost to co-channel and 3rd, 2nd, and 1st adjacent interference first, determined at the 3 arc-second square pixel level of each terrain data point. Each pixel is approximately 1.6 acres in size in the Washington, DC area. It does this for analog FM reception by comparing the Longley-Rice-Shumate determined signal level of all related stations at each pixel, for no IBOC interference, and for two levels of IBOC insertion, for an analog-only past, the present, and a future of full IBOC adoption. Background noise penalties, based on U. S. Census taker determination of the urban-to-rural nature of each Census tract, are then applied, and the remaining signal strength is then parsed for reception quality for each scenario presented. The methodology also processes IBOC reception, at both current levels of adoption and future full adoption. We believe this provides a significant quantity of quality predictive data for the FCC's engineers to study and analyze in order to recommend the best compromise of insertion power increase to adopt.

CHARLES RIVER:

With regard to the submission by Charles River Broadcasting, experience with FM IBOC signal reception analysis leads one to, as the late Paul Harvey said, "the rest of the story". Note that in the maps presented, the reception of IBOC is less robust to the south of Boston than to the west. This is the first hint that the southern reception of WKLB is limited not primarily by signal strength alone, but by the desired to undesired ratio of signal strength to interference. The three significant interferers to IBOC reception are:

1. IBOC co-channel interference.
2. Analog first adjacent, singular.
3. Analog dual first adjacent, (one in frequency above, one in frequency below).

The worst for IBOC is Analog, dual first adjacent. An IBOC station, at 1% insertion, must have a 21 dB stronger signal than the weaker of the two interfering stations, one a channel above, one a channel below, at the receiving location. A 21 dB D/U ratio means that the desired signal must be 126 times stronger. And there are a trio of stations on first adjacent channels to the south of Boston. They are located along the north shore of the Long Island Sound. The WMOS transmitter is at Westerly, 70 mi. southwest of the WKLB transmitter. The WGTX transmitter is located at Provincetown, southeast of the WKLB transmitter. WMOS and WGTX are one channel above WKLB. South of the WKLB transmitter, south of Providence, and between WMOS and WGTX, is WRNI-FM, one channel below WKLB. All three stations are from 60 to 70 miles from the WKLB transmitter, but WMOS and WRNI-FM are fairly close to each other, and on the opposite side of Providence from WKLB. So the three stations produce two strong areas of dual first adjacent interference, one surrounding, and one to the east, of Providence, as well as providing the less critical, Analog singular first adjacent interference near the transmitters.

I noted above that the *weaker* analog signal of the two interfering stations controls the maximum effect and location of dual adjacent interference. The middle station, WRNI-FM has a licensed ERP of 1.25 kW, and WMOS, the westernmost station, has an ERP of

3 kW, 3.8 dB stronger. Most of the area of analog first adjacent, dual interference is therefore controlled by WRNI-FM. But WRNI-FM has a CP to increase ERP to 6 kW; therefore, the location of the Analog dual first adjacent interference will then be controlled by the lesser power of WMOS, at a level 3.8 dB higher! So almost half of the gain realized in coverage area around Providence for WKLB at 10% IBOC insertion will be temporary. Conversely, WGTX, the easternmost station, has applied to reduce ERP from 2.15 kW to .135 kW, a 12 dB reduction, so if granted, WKLB would get the better reception near Plymouth anyway, without an IBOC power increase.

BOTTOM LINES:

For Multicast IBOC, the need is simple and direct: more IBOC power is needed for building penetration to improve indoor reception. The effect of increasing IBOC insertion power on exterior, i.e. outdoor, reception, including automotive IBOC reception, is a far more complex issue. I recommend that the Commission consider the offsetting effects of Analog reduction in coverage vs IBOC improvement in the Washington DC area at current, and eventual future 100% Hybrid IBOC adoption levels, at various insertion powers, as quantified in this report, before deciding on a course of action.

Tools such as the Comprehensive Market Analysis provide new, more accurate prediction and analysis of coverage areas than has previously been realized. They will be absolutely necessary to analyze the various effects on various stations, especially if the Commission considers varying the power levels of IBOC insertion of upper and lower IBOC subcarrier sets individually.

NOTES:

We did not include the more than 180 graphics. A 7200 by 4800 pixel study area uncompressed color .ppm image starts at about 50 Mb each, and they are currently still in a laboratory test form. We can provide what we have currently, on request by the Commission, for specific issues and/or stations in the Washington, DC market. Attachments include the results, in .xls worksheet form, and a White Paper presenting technical details of the Comprehensive Market Analysis methodology.

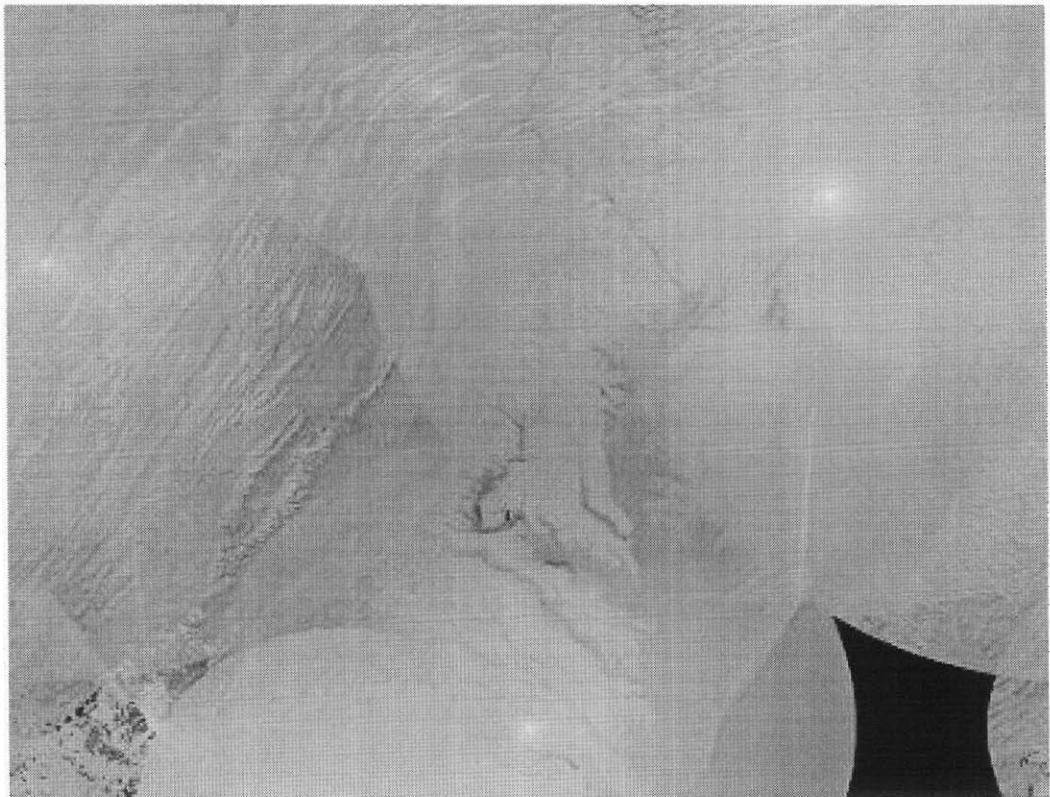
Respectfully Submitted,

Sidney E. Shumate July 17, 2009

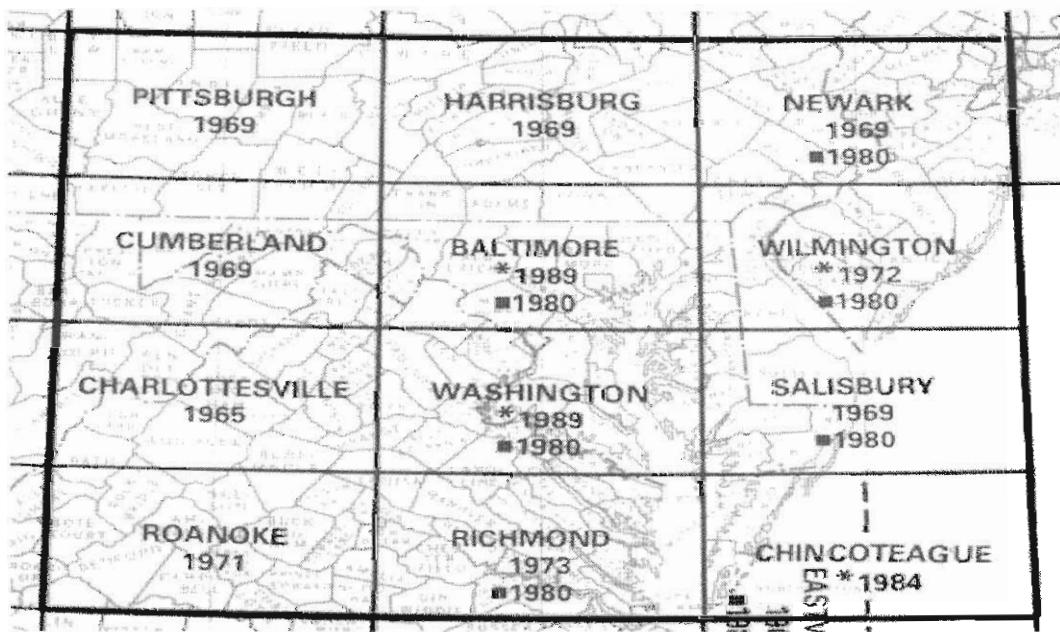
Sid Shumate

President, Givens & Bell, Inc.
1897 Ridge Rd.
Haymarket, VA 20169
tsunami@tidalwave.net

WETA-FM Co-Channel Shadow Map: corners 80,74,41,37 deg.



Bright spots are interfering co-channel stations. Signal strength is in intensity. Market Study area for above shown below.



**COMPREHENSIVE FM MARKET ANALYSIS
SUMMARY REPORT for WASHINGTON DC**

Study area boundaries:

**THEORETICAL "WHAT IF"
AND "IF ALL STATION; AVERAGES"
EXTERIOR PARKED to LOW SPEED:
PRIME ANALOG Reception**

MARKET 9 2.5 %(4dB) and 4%(6dB)

West: 80 East: 74 North: 41 South: 37 degrees

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
25400	9861856	3768049	1331124	681914	388045	913990	1456665	1666542	1388953	2034514
16166	6659348	2528344	905417	459892	261466	612070	995750	1141933	949722	1332999
7763	4149523	1577318	562422	281880	160300	387845	637528	714117	592432	811068
5428	3488972	1326164	475112	235586	133916	328023	542788	601851	498272	673319
3133	2495958	951449	337927	166022	94418	238332	394970	430511	356405	477274

PRIME HYBRID SIMULCAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
5271	3388647	1286637	460842	229712	130574	314690	522652	585525	487057	657486
9056	4766765	1807254	650327	326317	185335	440608	723750	821505	681900	934919

PRIME MULTICAST Digital Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
2695	2177276	829401	293764	144880	82462	205222	342829	376806	314029	411784
6010	3675111	1394435	500318	249754	141977	340625	563009	634774	527905	714645

ACCEPTABLE ANALOG Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
12030	4388557	1686055	585974	314219	178031	407258	601470	708173	594456	998863
10746	2836530	1093870	375200	197474	113345	259455	401750	470596	396168	622430
1482	399579	154943	53515	27236	15557	37720	59986	66793	55267	811068
521	139857	54222	18728	9458	5405	13358	21189	23406	19276	28928
365	126163	48164	17320	8666	4920	11864	19200	21536	17549	25007

DIGITAL EDGE of HYBRID Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
3770	1377106	520600	189470	96587	54746	125905	203085	235960	194828	277418
2835	909556	349060	122984	62752	35709	84973	135374	153350	126531	187773

DIGITAL EDGE of MULTICAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
6345	2589476	977835	356549	181418	102860	235371	382907	444682	367855	517720
5876	2001215	761881	272998	139313	79064	184952	296118	340076	280528	408051

PREDICTED CURRENT AVERAGES EXTERIOR PARKED to LOW SPEED		ALL		MARKET STATIONS:							
PRIME ANALOG Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
Analog vs FNA and 1 pct IBOC interf. Analog vs FNA and 10 pct IBOC interf.	6940 5232	3840115 3180918	1460611 1210808	522062 431774	259984 213869	147894 121695	360265 300244	593323 496006	661045 548135	548096 454383	747441 614809
PRIME HYBRID Digital Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	5529 10033	3765833 5205079	1430741 1974256	511825 710160	254827 356571	144826 202371	350385 480351	582317 792054	650690 897033	541232 744506	729727 1022029
PRIME MULTICAST Digital Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	2845 6328	2460134 4047961	935664 1537386	332325 550625	163621 274660	93147 156066	2311738 375592	387824 623590	426161 699092	355233 581308	470083 787025
ACCEPTABLE ANALOG Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
Analog vs FNA and 1 pct IBOC interf. Analog vs FNA and 10 pct IBOC interf.	1162 1304	275936 362525	107762 139853	36615 48876	18559 24717	10630 14088	26484 34319	41802 54715	45863 61107	37995 50297	57985 74402
DIGITAL EDGE of HYBRID Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	4503 4153	1439246 1204522	543515 461679	198334 162357	101744 83408	57544 47691	129966 111636	209737 177089	246343 203098	203274 168313	292301 250927
DIGITAL EDGE of MULTICAST Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over						
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	7187 7858	2744945 2361640	1038592 898549	377835 321892	192950 165320	109224 93986	248613 216394	404230 345554	470872 389273	389273 331511	551946 485939

PREDICTED CURRENT AVERAGES for MOBILE AT SPEED		ALL	MARKET	STATIONS:										
		Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over		
PRIME ANALOG Reception														
Analog vs FNA and 1 pct IBOC interf.		7593	4023263	1531991	546609	272329	154932	377638	621561	691820	573333	785038		
Analog vs FNA and 10 pct IBOC interf.		6019	3416490	1300986	463722	230077	130925	322318	531150	588045	487326	662924		
PRIME HYBRID Digital Reception														
1 pct. IBOC vs FNA and 1 pct IBOC interf.		8155	4664513	1770276	635397	318087	180638	431798	714039	804580	668252	911719		
10 pct. IBOC vs FNA and 10 pct IBOC interf.		12632	5977891	2269366	814695	410234	232982	552024	905697	1027809	852805	118641		
PRIME MULTICAST Digital Reception														
1 pct. IBOC vs FNA and 1 pct IBOC interf.		4793	3488476	1326112	473563	235283	133788	325947	541653	603120	501823	674196		
10 pct. IBOC vs FNA and 10 pct IBOC interf.		9100	4940956	1874373	673641	337784	191762	456698	753926	851899	707265	967978		
ACCEPTABLE ANALOG Reception														
Analog vs FNA and 1 pct IBOC interf.		844	150885	59360	19450	10071	5828	15227	21791	24184	20559	33771		
Analog vs FNA and 10 pct IBOC interf.		919	187469	73421	24761	12569	7209	18290	28256	30926	25623	39832		
DIGITAL EDGE of HYBRID Reception														
1 pct. IBOC vs FNA and 1 pct IBOC interf.		4477	1313376	499089	179297	92146	52343	120226	191657	223229	184552	269922		
10 pct. IBOC vs FNA and 10 pct IBOC interf.		3868	1013185	391132	134266	69755	40152	94051	146101	168494	141185	219148		
DIGITAL EDGE of MULTICAST Reception														
1 pct. IBOC vs FNA and 1 pct IBOC interf.		7838	2489414	943253	341131	174950	99194	226976	364044	424689	350981	507445		
10 pct. IBOC vs FNA and 10 pct IBOC interf.		7401	2050120	786124	275320	142235	81372	189377	297872	344404	286725	432811		

PREDICTED CURRENT AVERAGES for INDOOR RECEPTION		ALL	MARKET	STATIONS:
PRIME ANALOG Reception		Area: sq.mi.	Population	Households
Analog vs FNA and 1 pct IBOC interf.	5165	3268427	1243235	443988
Analog vs FNA and 10 pct IBOC interf.	3408	2574374	981627	348070
PRIME HYBRID Digital Reception		Area: sq.mi.	Population	Households
1 pct. IBOC vs FNA and 1 pct IBOC interf.	2298	2078867	792177	278762
10 pct. IBOC vs FNA and 10 pct IBOC interf.	5529	3765833	1430741	511825
PRIME MULTICAST Digital Reception		Area: sq.mi.	Population	Households
1 pct. IBOC vs FNA and 1 pct IBOC interf.	661	802347	314884	100846
10 pct. IBOC vs FNA and 10 pct IBOC interf.	2845	2460134	935664	332325
ACCEPTABLE ANALOG Reception		Area: sq.mi.	Population	Households
Analog vs FNA and 1 pct IBOC interf.	2015	650971	248392	88694
Analog vs FNA and 10 pct IBOC interf.	2125	696273	263396	95914
DIGITAL EDGE of HYBRID Reception		Area: sq.mi.	Population	Households
1 pct. IBOC vs FNA and 1 pct IBOC interf.	3230	1686966	638564	233063
10 pct. IBOC vs FNA and 10 pct IBOC interf.	4503	1439246	543515	198334
DIGITAL EDGE of MULTICAST Reception		Area: sq.mi.	Population	Households
1 pct. IBOC vs FNA and 1 pct IBOC interf.	4866	2963485	1115877	410979
10 pct. IBOC vs FNA and 10 pct IBOC interf.	7187	2744945	1038592	377835

PREDICTED CURRENT AVERAGES for PORTABLE RECEPTION		ALL	MARKET	STATIONS:
PRIME ANALOG Reception				
Analog vs FNA and 1 pct IBOC interf.		4023	2864754	1090993
Analog vs FNA and 10 pct IBOC interf.		2482	2128150	812604
PRIME HYBRID Digital Reception	Area: sq.mi.	Population	Households	Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	1140 3769	1209227 3014704	4666686 1146840	1566115 405341
PRIME MULTICAST Digital Reception	Area: sq.mi.	Population	Households	Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	234 1554	383597 1525460	155798 584683	45332 200628
ACCEPTABLE ANALOG Reception	Area: sq.mi.	Population	Households	Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
Analog vs FNA and 1 pct IBOC interf. Analog vs FNA and 10 pct IBOC interf.	2488 2243	833045 899533	314915 340034	114757 124267
DIGITAL EDGE of HYBRID Reception	Area: sq.mi.	Population	Households	Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	2628 3917	1805476 1502987	680174 568445	251725 206609
DIGITAL EDGE of MULTICAST Reception	Area: sq.mi.	Population	Households	Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf. 10 pct. IBOC vs FNA and 10 pct IBOC interf.	3534 6132	2631107 2992231	991071 1130602	363009 414322

**COMPREHENSIVE FM MARKET ANALYSIS
SUMMARY REPORT for WASHINGTON DC**

**Study area boundaries:
THEORETICAL 'WHAT IF'
AND 'IF ALL STATION; AVERAGES'
EXTERIOR PARKED to LOW SPEED:
PRIME ANALOG Reception**

MARKET 9 2.5 % (4dB) and 4% (6dB)

	West:	80	East:	74	North:	41	South:	37 degrees
Area: sq.mi.								
Population								
Households								
Under 9								
10 to 14								
15 to 17								
18 to 24								
25 to 34								
35 to 44								
45 to 54								
55 and over								
Analog very rural noise limited only								
Analog vs full noise (FN) limiting only								
Analog vs FN and Analog (A) interference.								
Analog vs FN A & 2.5 pct IBOC interf.								
Analog vs FN A & 4.0 pct IBOC interf.								

PRIME HYBRID SIMULCAST Reception

	2.5pct. IBOC vs FNA & 2.5pct IBOC interf.	4.0pct. IBOC vs FNA & 4.0pct IBOC interf.
Area: sq.mi.	6796	3972810
Population	6659348	4262334
Households	541230	270506
Under 9	581017	290799
10 to 14	541230	270506
15 to 17	165231	394394
18 to 24	367782	609273
25 to 34	652153	685804
35 to 44	735426	569969
45 to 54	610821	774415
55 and over	832393	

	2.5pct. IBOC vs FNA & 2.5pct IBOC interf.	4.0pct. IBOC vs FNA & 4.0pct IBOC interf.
Area: sq.mi.	3890	2810943
Population	4560	3103833
Households	1066382	380804
Under 9	421507	420916
10 to 14	189100	107557
15 to 17	119227	288854
18 to 24	262459	437228
25 to 34	480562	485923
35 to 44	536487	404605
45 to 54	446357	543158
55 and over	601010	

PRIME MULTICAST Digital Reception

	2.5pct. IBOC vs FNA & 2.5pct IBOC interf.	4.0pct. IBOC vs FNA & 4.0pct IBOC interf.
Area: sq.mi.	12030	4388557
Population	10746	2836530
Households	1688055	1093870
Under 9	375200	197474
10 to 14	585974	314219
15 to 17	113345	178031
18 to 24	407258	401750
25 to 34	601470	470596
35 to 44	708173	594456
45 to 54	598863	998863
55 and over	622430	

ACCEPTABLE ANALOG Reception

	Analog very rural noise limited only	Analog vs full noise (FN) limiting only	Analog vs FN and Analog (A) interference.	Analog vs FN A & 2.5 pct IBOC interf.	Analog vs FN A & 4.0 pct IBOC interf.
Area: sq.mi.	1216953	461564	166604	85217	48287
Population	1117889	425881	152279	77795	44133
Households	890194	327026	166626	94460	217202
Under 9	115727	59058	33527	79074	126323
10 to 14	103611	103611	165202	165202	189883
15 to 17	111878	111878	178989	178989	207483
18 to 24	174117	174117	214117	214117	271150
25 to 34	592432	592432	611068	611068	247238
35 to 44	144413	144413	156614	156614	228263
45 to 54	144413	144413	16146	16146	24326
55 and over	119011	119011	8858	8858	8858

DIGITAL EDGE of HYBRID Simulcast Reception

	2.5pct. IBOC vs FNA & 2.5pct IBOC interf.	4.0pct. IBOC vs FNA & 4.0pct IBOC interf.
Area: sq.mi.	6446	2378823
Population	2570	851393
Households	325056	115727
Under 9	59058	33527
10 to 14	94460	217202
15 to 17	351033	351033
18 to 24	126323	126323
25 to 34	144413	144413
35 to 44	144413	144413
45 to 54	119011	119011
55 and over	174115	174115

PREDICTED CURRENT AVERAGES
EXTERIOR PARKED to LOW SPEED

ALL MARKET STATIONS:

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

PRIME ANALOG Reception
Analog vs FNA & 2.5 pct IBOC interf.

Analog vs FNA & 4.0 pct IBOC interf.

PRIME HYBRID Digital Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf.

4.0pct. IBOC vs FNA & 4.0pct IBOC interf.

PRIME MULTICAST Digital Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf.

4.0pct. IBOC vs FNA & 4.0pct IBOC interf.

ACCEPTABLE ANALOG Reception

Analog vs FNA & 2.5 pct IBOC interf.

Analog vs FNA & 4.0 pct IBOC interf.

DIGITAL EDGE of HYBRID Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf.

4.0pct. IBOC vs FNA & 4.0pct IBOC interf.

DIGITAL EDGE of MULTICAST Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf.

4.0pct. IBOC vs FNA & 4.0pct IBOC interf.

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

6940 3840115 1460611 522062 259984 147894 360265 593323 661045 548096 747441

6096 3467180 1320014 470796 233640 132935 326780 538790 596895 494600 672740

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

7221 4359259 1655559 593029 296284 168317 404255 669628 752231 625161 850351

8155 4664513 1770276 635397 318087 180638 431798 714039 804580 668252 911719

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

4101 3180425 1209754 431011 213711 121572 296910 495947 550111 458040 613120

4793 3468476 1326112 473563 235283 133788 325047 541653 603120 501823 674196

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

1162 275936 107762 36615 18559 10630 26484 41802 45863 37995 57985

923 188193 73699 24860 12619 7237 18363 28564 31045 25721 39979

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

4582 1360401 513985 187241 96449 54629 122856 197066 232228 191810 278119

4477 1313376 499089 179297 92146 52343 120226 191657 223229 184552 269922

Area: sq.mi. Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over

7702 2559236 959789 349259 179022 101374 230201 370748 434347 358931 515351

7838 2469414 943253 341131 174950 99194 226976 364044 424689 350981 507445

PREDICTED CURRENT AVERAGES for MOBILE AT SPEED

PREDICTED CURRENT AVERAGES
for INDOOR RECEPTION

ALL MARKET STATIONS:

PRIME ANALOG Reception	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
5165 3268427 1243235 443988 220299 125329 307171 508403 563608 467693 631932	4609 3017222 1148654 409456 202516 115221 284876 471937 520342 431434 581437

PRIME HYBRID Digital Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf. 4.0pct. IBOC vs FNA & 4.0pct IBOC interf.	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
3447 2837304 1079235 384285 190002 108115 265414 444155 490972 409135 545223 4101 3180425 1209754 431011 213711 121572 296910 495947 550111 458040 613120	

PRIME MULTICAST Digital Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf. 4.0pct. IBOC vs FNA & 4.0pct IBOC interf.	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
1340 1361600 523285 177787 87098 49894 134144 217344 232630 197292 265406 1786 1705856 652290 226101 110762 63336 164970 271827 293393 246963 325501	

ACCEPTABLE ANALOG Reception

Analog vs FNA & 2.5 pct IBOC interf. Analog vs FNA & 4.0 pct IBOC interf.	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
2015 650971 248392 88694 44959 25568 60782 97485 110812 91233 131435 1681 506728 193655 68916 34890 19860 47426 75827 86088 70890 102827	

DIGITAL EDGE of HYBRID Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf. 4.0pct. IBOC vs FNA & 4.0pct IBOC interf.	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
3773 1521954 576324 208744 106281 60202 138840 225472 261259 216026 305127 4053 1484088 560521 204385 104376 59056 134887 218092 254468 210212 295598	

DIGITAL EDGE of MULTICAST Reception

2.5pct. IBOC vs FNA & 2.5pct IBOC interf. 4.0pct. IBOC vs FNA & 4.0pct IBOC interf.	
Area: sq.mi.	Population Households Under 9 10 to 14 15 to 17 18 to 24 25 to 34 35 to 44 45 to 54 55 and over
5880 2997659 1132273 415241 209185 118422 270110 452284 519601 427868 584944 6367 2958657 1117986 409296 207325 117301 266828 442211 511187 421289 583218	

**COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WAMU"**

app. id:
1166264

**THEORETICAL "WHAT IF" AND
"IF ALL STATION" SCENARIOS:**

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
PRIME ANALOG Reception											
Analog very rural noise limited only	32538	12495478	4774130	1684121	869128	494060	1158758	1824849	2102124	1752079	2610358
Analog vs full noise (FN) limiting only	20105	8525876	3242359	1159332	589269	334377	783749	1275768	1462216	1212564	1708601
Analog vs FN and Analog (A) interference.	8247	5769477	2188175	790306	392236	222220	538420	894102	998260	822769	1111165
Analog vs FN A and 1 pct IBOC interf.	7410	5564990	2110677	762425	377281	213768	520099	866227	963821	794203	1067166
Analog vs FN A and 10 pct IBOC interf.	4834	4423526	1681034	603733	295339	167428	420432	702292	766719	631077	8365056
PRIME HYBRID Digital Reception											
1 pct. IBOC vs FN A and 1 pct IBOC interf.	7339	5193997	1975944	708283	352591	199857	4844398	801050	895555	742305	1009958
10 pct. IBOC vs FN A and 10 pct IBOC interf.	11452	6764698	2564566	926530	464885	263556	622014	1028186	1167661	967512	1324353
PRIME MULTICAST Digital Reception											
1 pct. IBOC vs FN A and 1 pct IBOC interf.	4134	3872922	1480253	524354	257758	146131	367678	612789	669633	554107	740472
10 pct. IBOC vs FN A and 10 pct IBOC interf.	8234	5551446	2109628	758223	378128	214287	515979	852897	957488	793503	1080939
ACCEPTABLE ANALOG Reception											
Analog very rural noise limited only	14357	5334202	2050628	712114	383855	217608	496505	724373	852224	715999	1231524
Analog vs full noise (FN) limiting only	14134	3187799	1229223	416149	223185	128078	291417	434691	522961	445270	725048
Analog vs FN and Analog (A) interference.	677	1146688	44758	15081	7837	4547	11261	16091	18430	15727	25693
Analog vs FN A and 1 pct IBOC interf.	392	67467	26284	8924	4568	2662	6778	9596	10884	9174	14881
Analog vs FN A and 10 pct IBOC interf.	388	81597	31314	10973	5623	3244	7994	11766	13552	11226	17219
DIGITAL EDGE of HYBRID Reception											
1 pct. IBOC vs FN A and 1 pct IBOC interf.	4112	1570700	588622	218247	112295	63699	137616	227136	272106	225207	314395
10 pct. IBOC vs FN A and 10 pct IBOC interf.	2722	697755	269355	94194	48371	27531	63944	104014	118389	96447	144906
DIGITAL EDGE of MULTICAST Reception											
1 pct. IBOC vs FN A and 1 pct IBOC interf.	7317	2891175	1084313	402177	207128	117424	254335	415397	498028	413406	583881
10 pct. IBOC vs FN A and 10 pct IBOC interf.	5940	1911047	724294	262501	135128	76799	169978	279304	328562	270456	388320

**COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WAMU"**

app. id:
1166264

**CURRENT RECEPTION PREDICTIONS
EXTERIOR PARKED to LOW SPEED:**

PRIME ANALOG RECEPTION

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
7997	5636844	2137797	771925	382370	216693	527360	876173	975534	803894	1082896
5559	4520196	1717758	616566	302267	171411	429721	715164	782502	644520	858046

PRIME Reception; HYBRID SIMULCAST

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
7350	5194243	1976045	708313	352608	199868	484417	801079	895592	742343	1010022
11601	6776854	2569101	928235	465851	264104	622982	1029725	1169715	969240	1327001

PRIME MULTICAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
4135	3872941	1480260	524356	257759	146132	367680	612792	669636	554109	740477
8258	5552170	2109913	758317	378184	214319	516035	852984	957603	793611	1081117

ACCEPTABLE ANALOG Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
609	95942	37564	12522	6493	3788	9543	13485	15357	13179	21576
652	112570	44000	14757	7581	4404	11072	16310	18464	15510	24474

DIGITAL EDGE of HYBRID Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
4251	1582611	593056	219922	113243	64236	138564	228646	274123	226897	316979
3023	743977	286841	100499	51722	29464	68305	110083	125993	102783	155129

DIGITAL EDGE of MULTICAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
7466	2903913	1088841	403879	208092	117972	255301	416934	500079	415131	586524
6366	1968661	746029	270417	139389	79249	175252	286825	338105	278412	401012

**COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WAMU"**

app. id:
1166264

**CURRENT RECEPTION PREDICTIONS
FOR MOBILE AT SPEED:**

ANALOG PRIME Reception

Analog vs FN A and 1 pct IBOC intf.
Analog vs FN A and 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
8367	5695237	2160551	779629	386323	218995	533101	884581	985052	811906	1095650	
5971	4600162	1748923	627042	307631	174514	437583	726949	795788	655537	875118	
PRIME Reception; HYBRID SIMULCAST	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
10028	6238298	2366706	853560	427065	242118	576673	952763	1076600	891773	1217746	
13556	7304940	2773525	999376	502196	284761	671437	1109280	1259490	1042223	1436175	
PRIME MULTICAST Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
6424	4816206	1833586	655470	325519	184629	450843	746274	830818	688885	933767	
10845	6530996	2476307	894069	448136	254060	602007	994550	1127248	934021	1276904	
ACCEPTABLE ANALOG Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
378	60044	23671	7442	3917	2326	6792	7911	8928	8167	14561	
418	55032	21738	7068	3705	2198	5425	7450	8633	7625	12928	
DIGITAL EDGE of HYBRID Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
3528	1066642	406820	145816	75131	42644	94764	156518	182890	150451	218429	
2306	443817	169644	59822	31311	17984	41882	62306	73498	60535	96380	
DIGITAL EDGE of MULTICAST Reception	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
7131	2488734	939939	343906	176677	100132	220594	363007	428673	353338	502408	
5017	1217761	466862	165229	85371	48684	111312	177036	205740	168737	255651	

COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WAMU"

app. | id:
1166264

CURRENT RECEPTION PREDICTIONS
FOR INDOOR RECEPTION

PRIME ANALOG Reception

Analog vs FNA and 1 pct IBOC intf.
Analog vs FNA and 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	6530	5231180	1983944	716535	354152	200558	490073	816332	905966	746341	1001223
	4285	4100152	1560090	557947	272887	154679	390836	651914	709871	585088	776930

PRIME Reception; HYBRID SIMULCAST

1 pct. IBOC vs FNA and 1 pct IBOC intf.
IF 10 pct. IBOC vs FNA and 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	3545	3527568	1348685	476746	233411	132365	336051	561869	610944	505993	670189
	7350	5194243	1976045	708313	352608	199868	484417	801079	895592	742343	1010022

PRIME MULTICAST Reception

1 pct. IBOC vs FNA and 1 pct IBOC intf.
IF 10 pct. IBOC vs FNA and 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	1355	1674835	654239	212227	103746	59515	175730	274315	284331	243086	321886
	4135	3872941	1480260	524356	257759	146132	367880	612792	669636	554109	740477

ACCEPTABLE ANALOG Reception

Analog vs FNA and 1 pct IBOC intf.
Analog vs FNA and IF 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	1610	431427	163753	58879	29986	17150	39760	63653	73832	61024	871442
	1456	456816	171871	63453	31891	18186	42379	68491	78794	64616	89007

DIGITAL EDGE of HYBRID Reception

1 pct. IBOC vs FNA and 1 pct IBOC intf.
10 pct. IBOC vs FNA and IF 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	3804	1666675	627360	231567	119197	67503	148367	239210	284648	236349	339833
	4251	1582611	593056	219922	113243	64236	138564	228646	274123	226897	316979

DIGITAL EDGE of MULTICAST Reception

1 pct. IBOC vs FNA and 1 pct IBOC intf.
10 pct. IBOC vs FNA and IF 10 pct IBOC intf.

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
	5994	3519408	1321895	496086	248862	140353	308687	526765	611261	499257	688137
	7466	2903913	1088841	403879	208092	117972	255301	416934	500079	415131	586524

**COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WAMU"**

app. id:
1166264

**CURRENT RECEPTION PREDICTIONS
FOR PORTABLE RECEPTION:**

PRIME Reception; ANALOG

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
5423	4739278	1801357	647689	319540	180905	445386	742291	820150	676288	907029
3484	3704470	1413366	502051	245189	138969	352959	592043	641728	529762	701768

PRIME Reception; HYBRID SIMULCAST

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
2143	2418301	930470	319193	155472	88703	237104	393576	419287	350906	454060
5214	4296168	1638486	583140	288098	163414	403227	672711	742650	615447	827481

PRIME MULTICAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
411	6602337	278633	71305	34365	20042	85360	116174	104883	92746	135361
2688	2897296	1110074	387880	188901	107454	278897	468070	503234	418332	544526

ACCEPTABLE ANALOG Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
2278	837493	312956	116276	58842	33498	76124	124557	145287	119492	163417
1740	733545	273118	103386	51298	29122	69445	111477	126835	102912	139070

DIGITAL EDGE of HYBRID Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
3070	1877867	708016	263948	132625	74711	166123	279135	323363	264541	373421
4385	1781776	668157	248143	127490	72188	159551	256886	306081	253311	358127

DIGITAL EDGE of MULTICAST Reception

Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
4803	3635931	1359853	511835	253732	143371	317868	556536	637767	522701	692120
6911	3180649	1196570	443403	226686	128147	283881	461527	545497	450425	641082

COMPREHENSIVE MARKET REPORT
FOR FM STATION:
"WFWW"

app_id:
299575

**THEORETICAL 'WHAT IF' AND
 'IF ALL STATION' SCENARIOS:**

PRIME ANALOG Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
Analog very rural noise limited only	33517	12916649	4938674	1739879	898987	510986	1198384	1883705	2168674	1807701	2708334
Analog vs full noise (FN) limiting only	20696	8703404	3312234	1182112	601346	341285	799919	1300872	1490764	1237094	1750012
Analog vs FN and Analog (A) interference.	12404	7492549	2837527	1029334	520222	293804	681475	1128108	1293519	1068681	1477408
Analog vs FN A and 1 pct IBOC interf.	7588	6328544	2399714	869674	434116	245221	580401	971111	1095573	903903	1228545
Analog vs FN A and 10 pct IBOC interf.	4255	4812542	1829989	659214	3244429	183256	448119	755329	834193	687544	920259

PRIME HYBRID Digital Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf.	6674	5299269	2015666	723887	359519	203610	492731	817559	913971	757235	1030757
10 pct. IBOC vs FNA and 10 pct IBOC interf.	9144	6327634	2401703	867311	431853	244598	585908	972122	1092331	903374	1230136

PRIME MULTICAST Digital Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf.	4231	3991342	1523545	541489	267030	151395	374198	627331	691017	572919	765962
10 pct. IBOC vs FNA and 10 pct IBOC interf.	7292	5583237	2122213	763553	379410	214805	518916	860675	963299	797346	1089034

ACCEPTABLE ANALOG Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
Analog very rural noise limited only	13951	5092053	1955368	679649	366602	207828	474514	689931	813720	684129	1175780
Analog vs full noise (FN) limiting only	14317	3363023	1295288	440639	237005	136834	306159	456608	551781	468806	764890
Analog vs FN and Analog (A) interference.	1620	421468	161150	57385	30425	17041	39074	59917	69916	56562	91148
Analog vs FN A and 1 pct IBOC interf.	128	52035	20216	7269	3747	2078	4671	7545	8647	6937	11142
Analog vs FNA and 10 pct IBOC interf.	80	42578	16229	6062	3078	1711	3806	6283	7263	5867	8508

DIGITAL EDGE of HYBRID Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf.	2470	1028366	386037	143425	72334	40987	93178	154563	178360	146139	199380
10 pct. IBOC vs FNA and 10 pct IBOC interf.	1087	231355	88776	31579	16187	9202	22392	33711	38798	31556	47930

DIGITAL EDGE of MULTICAST Reception

	Area: sq.mi.	Population	Households	Under 9	10 to 14	15 to 17	18 to 24	25 to 34	35 to 44	45 to 54	55 and over
1 pct. IBOC vs FNA and 1 pct IBOC interf.	4913	2336293	878158	325822	164823	93202	21170	344791	401314	330455	464175
10 pct. IBOC vs FNA and 10 pct IBOC interf.	2940	975752	368266	135337	68630	38996	89384	144958	167830	137584	193033